

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Original) A semiconductor device comprising a microphone formed in an integrated manner and comprising a sensing electrode formed as part of an acoustic pressure sensing membrane, and a counter electrode in the form of a perforated rigid back-plate membrane, wherein said sensing electrode is connected to the gate of a sensing transistor.

2. (Original) A semiconductor device as claimed in claim 1 wherein said device is operable in a constant bias mode.

3. (Original) A semiconductor device as claimed in claim 2 wherein the counter electrode is set to a bias voltage and wherein the potential of the sensing electrode and hence the gate potential of the sensing transistor vary in accordance with the acoustic pressure, and wherein the gate potential is biased in the conducting regime whereby variations in the gate voltage vary the output voltage of the sensing transistor.

4. (Original) A semiconductor device as claimed in claim 2 wherein the potential of the sensing electrode is fixed and an output current from the sensing electrode or the counter electrode and varying in response to acoustic pressure on the sensing membrane is taken as the output signal.

5. (Currently Amended) A semiconductor device as claimed in claim 1 wherein said device is operable in a constant charge mode by first charging the sensing electrode followed by setting the potential of the counter electrode to ground and biasing the sensing transistor to a conducting state.

6. (Original) A semiconductor device as claimed in claim 5 wherein the charging of the sensing electrode is by tunneling from a substrate.

7. (Original) A semiconductor device as claimed in claim 5 wherein the charging of the sensing electrode is by injection from the sensing transistor.

8. (Original) A semiconductor device as claimed in claim 1 wherein the sensing membrane is formed of a layer of an insulating material and a layer of a conducting material.

9. (Original) A semiconductor device as claimed in claim 8 wherein said insulating material comprises low stress silicon nitride, and wherein said conducting material comprises polysilicon.

10. (Original) A semiconductor device as claimed in claim 1 wherein said counter electrode is formed of a layer of a first conducting material and a layer of a second conducting material.

11. (Original) A semiconductor device as claimed in claim 10 wherein said second conducting material is a relatively hard material and is sandwiched between two layers of said first conducting material which is a relatively soft material.

12. (Original) A semiconductor device as claimed in claim 11 wherein said first material is aluminium and said second material is titanium.

13-22. (Cancelled).